wheel, the pinion end muſt be made to caſt in and out of the drum-gear at pleaſure, particularly to let the tub return.

G, is a bevil wheel with a ſmall ſhaft, receiving motion from the inclined wheel: to the ſhaft a rope is fixed, and continued round a pulley, to a beam projecting from the front of the building; the uſe of this is to draw the boat out of the upper canal on the bridge of the plane, by means of the deſcending boat, or tub, giving motion to the inclined wheel. When the rope is hooked to the boat, a pull will draw a knot, *which anſwers as a ſtopper*, home to the lever H, which moving, the lever drops the wheel into gear. When it has raiſed the boat to a certain point, another knot, drawing the lever H inwards, lifting the wheel out of gear, it remains inactive, although the other parts of the machine are in motion. This mode of raiſing the boats out of the upper canal, on the bridge of the plane, keeps a conſtant ſupply ready to deſcend*.

I, *(ſee the Top-works.)* This is to ſtop the boat, when drawn on the bridge of the plane, from deſcending till the man is ready. To place this, a ſpace muſt be made in the plane, between the rails, about five feet long. The ſtopper may be a frame of wood, projecting about five feet above the plane, and deſcending beneath it, where it muſt be framed into a ſhaft, working on gudgeons, one end of the ſhaft projecting about three feet from the ſide of the plane; to the ſhaft a weight muſt be ſuſpended by a chain, which weight will raiſe it to a perpendicular, after the boat has paſſed; by which it faſtens under the end of the lever, and ſtops the next boat, and ſo on†. On the upper end of the ſtopper there

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* As a diſtinction, this rope may be called the Preparer, in conſequence of preparing the boats to deſcend.

† See the Plate of Parts.

muſt be a roller, rather hollow on the face, to eaſe the chain as it paſſes.

J, are the centrifugal fans, compoſed of wood, and hung to a perpendicular ſhaft, by boſſes on the fans, and a gudgeon through the ſhaft. The object of theſe is to regulate the movement of the various weights, without the attention of the workmen, which will conſequently be a means of ſaving time; theſe fans, as the weights are heavy, and increaſe in velocity, expand, creating reſiſtance by their action on the air, by which they retard the motion; and, although the weight of the boats may vary, they preſerve nearly an equal movement, which will render any attention to this part of the operation uſeleſs.

K, is a lying ſhaft with two wheels; one ſmall, working in the inclined wheel, another of a diameter four, or more, times larger than the firſt, working on the pinion of the fan-ſhaft, which is to multiply the ſpeed of the fans; they conſequently will create greater reſiſtance.

See the Plate of Parts, Fig. I. which repreſents the boat entering the upper canal, and the mode of ſeparating from the leading chains, in conſequence of the form of the hook, which hook is to be made with a pin about four inches long, croſſing at a right angle through the head; by this means, ſo long as the boat-chains are in a diagonal direction, in aſcending or deſcending, the hook will hold faſt to the leading chain; but on entering the different ponds, the roller cauſes the boat-chains to riſe in a perpendicular direction, by which the pin preſſes on the link, and turns out the bill of the hook, leaving the boat at liberty to run into the canal, without ſtopping the machine for that purpoſe, which